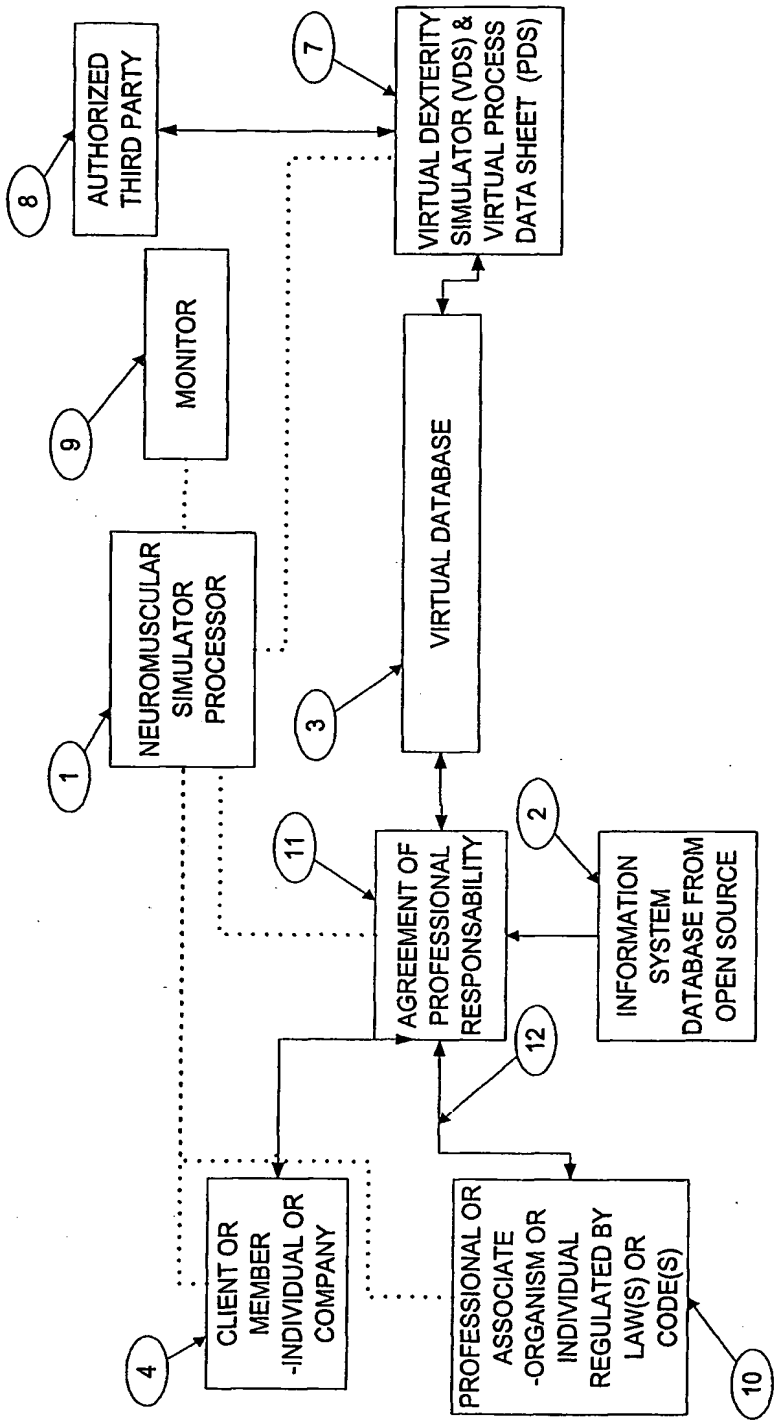

FIG. 1

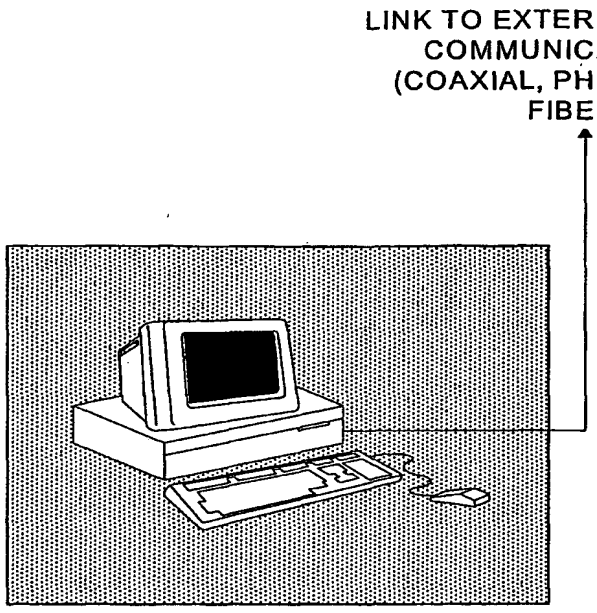
LINK TO EXTERNAL NETWORK VIA
COMMUNICATION CABLES
(COAXIAL, PHONE LINE, OPTIC
FIBER, ECT.)
MEMBER SITE

FIG. 2

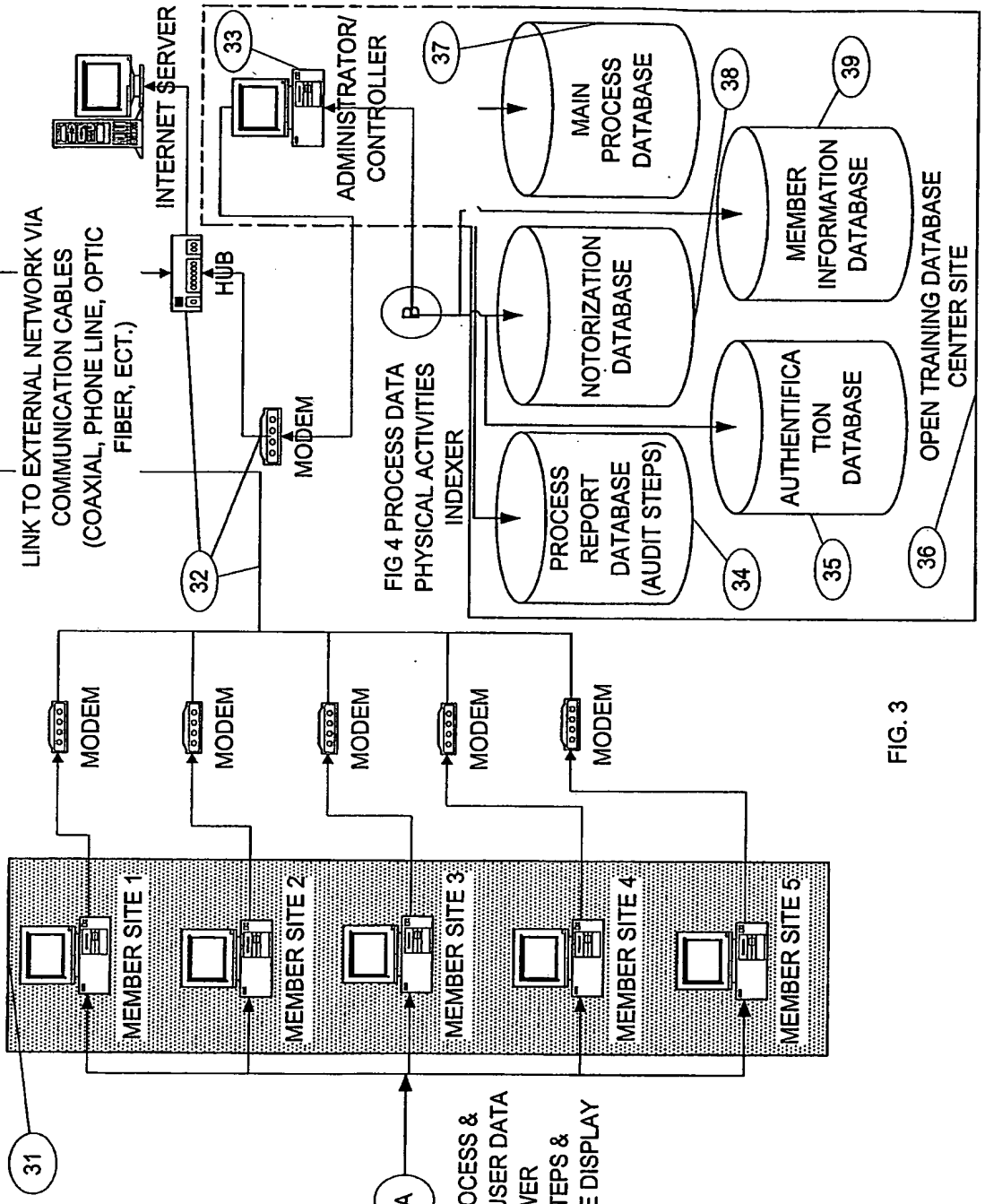
INTERNET SERVER
ADMINISTRATOR/ CONTROLLER
MAIN PROCESS DATABASE
MEMBER INFORMATION DATABASE
NOTORIZATION DATABASE
AUTHENTIFICATION DATABASE
PROCESS REPORT DATABASE (AUDIT STEPS)
OPEN TRAINING DATABASE CENTER SITE
HUB
MODEM
LINK TO EXTERNAL NETWORK VIA COMMUNICATION CABLES (COAXIAL, PHONE LINE, OPTIC FIBER, ECT.)
FIG 4 PROCESS DATA PHYSICAL ACTIVITIES INDEXER
MEMBER SITE 1
MEMBER SITE 2
MEMBER SITE 3
MEMBER SITE 4
MEMBER SITE 5
FIG. 6 PROCESS & PROCESS USER DATA VIEWER
FIG 7 STEPS & INTERFACE DISPLAY

FIG. 3

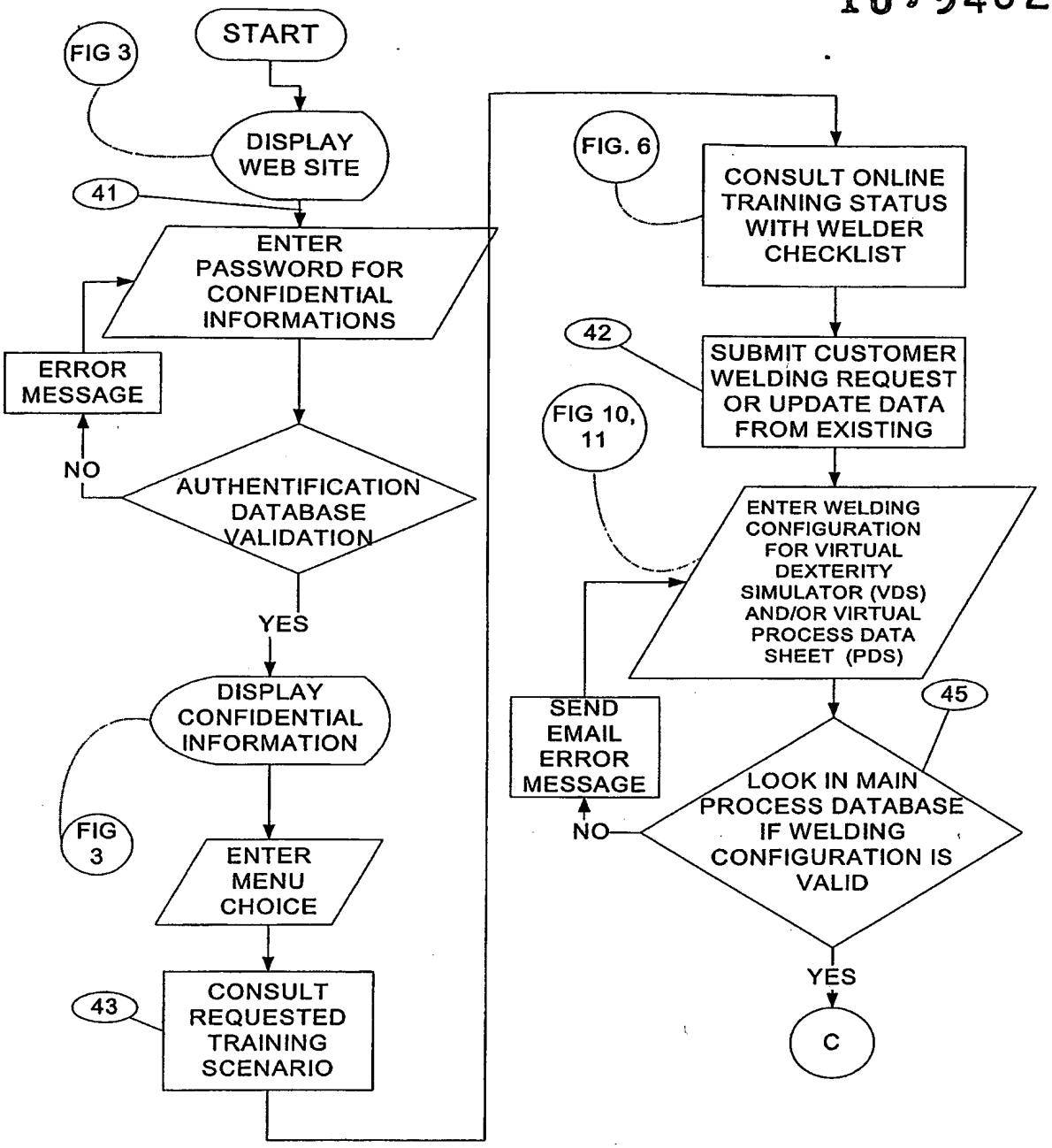
START
FIG 3
DISPLAY WEB SITE
41
ENTER PASSWORD FOR CONFIDENTIAL INFORMATIONS
ERROR MESSAGE
NO
AUTHENTIFICATION DATABASE VALIDATION
YES
DISPLAY CONFIDENTIAL INFORMATION
FIG 3
ENTER MENU CHOICE
43
CONSULT REQUESTED TRAINING SCENARIO
FIG. 6
CONSULT ONLINE TRAINING STATUS WITH WELDER CHECKLIST
42
SUBMIT CUSTOMER WELDING REQUEST OR UPDATE DATA FROM EXISTING
FIG 10, 11
ENTER WELDING CONFIGURATION FOR VIRTUAL DEXTERITY SIMULATOR (VDS) AND/OR VIRTUAL PROCESS DATA SHEET (PDS)
45
SEND EMAIL ERROR MESSAGE
NO
LOOK IN MAIN PROCESS DATABASE IF WELDING CONFIGURATION IS VALID
YES
C

FIG. 4

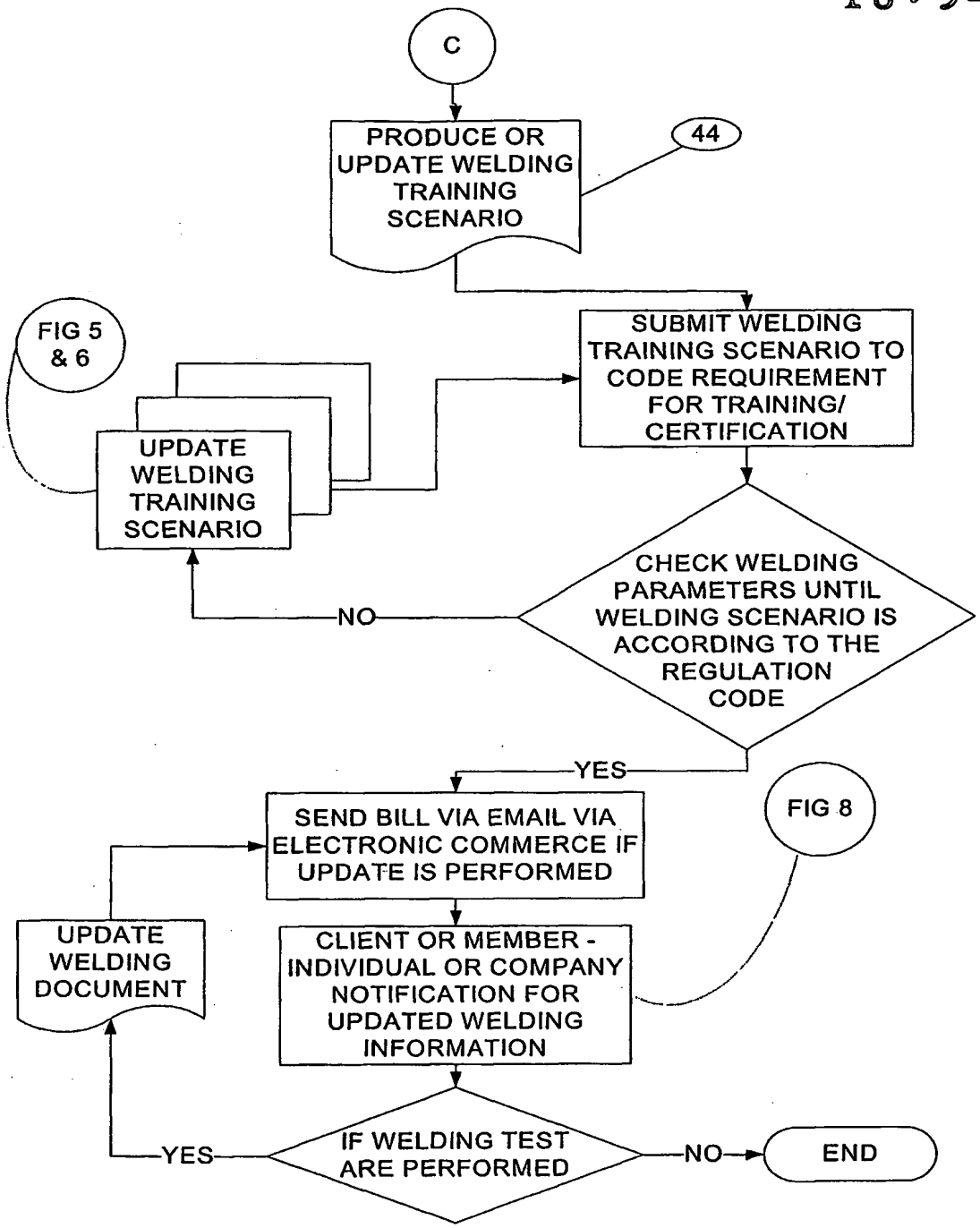

FIG. 4 (Continuity)

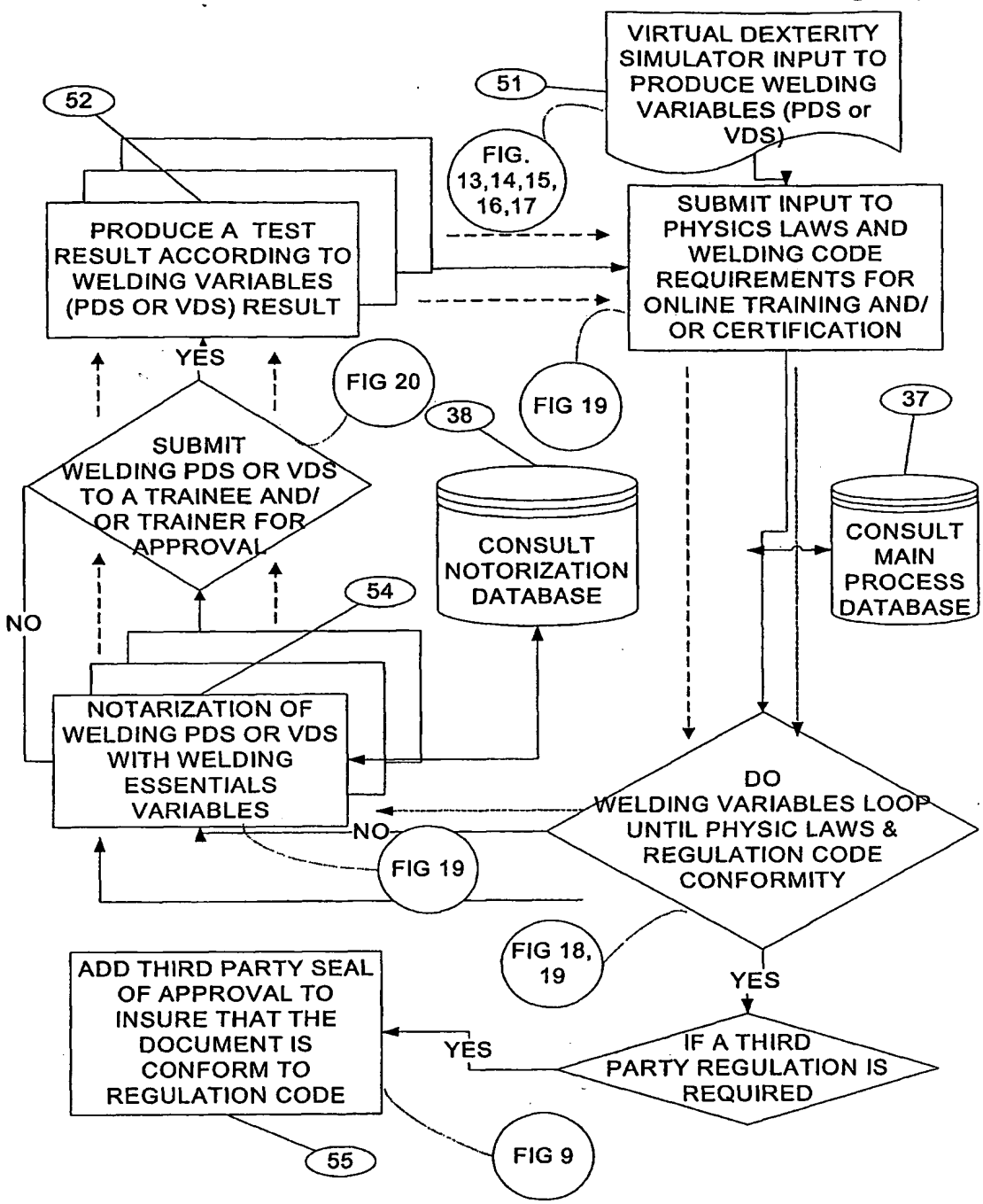
VIRTUAL DEXTERITY SIMULATOR INPUT TO PRODUCE WELDING VARIABLES (PDS or VDS)
51
52
FIG. 13,14,15, 16,17
PRODUCE A TEST RESULT ACCORDING TO WELDING VARIABLES (PDS OR VDS) RESULT
SUBMIT INPUT TO PHYSICS LAWS AND WELDING CODE REQUIREMENTS FOR ONLINE TRAINING AND/ OR CERTIFICATION
YES
FIG 20
FIG 19
38
37
SUBMIT WELDING PDS OR VDS TO A TRAINEE AND/ OR TRAINER FOR APPROVAL
CONSULT NOTORIZATION DATABASE
CONSULT MAIN PROCESS DATABASE
NO
54
NOTARIZATION OF WELDING PDS OR VDS WITH WELDING ESSENTIALS VARIABLES
DO WELDING VARIABLES LOOP UNTIL PHYSIC LAWS & REGULATION CODE CONFORMITY
NO
FIG 19
FIG 18, 19
YES
ADD THIRD PARTY SEAL OF APPROVAL TO INSURE THAT THE DOCUMENT IS CONFORM TO REGULATION CODE
YES
IF A THIRD PARTY REGULATION IS REQUIRED
55
FIG 9

FIG. 5

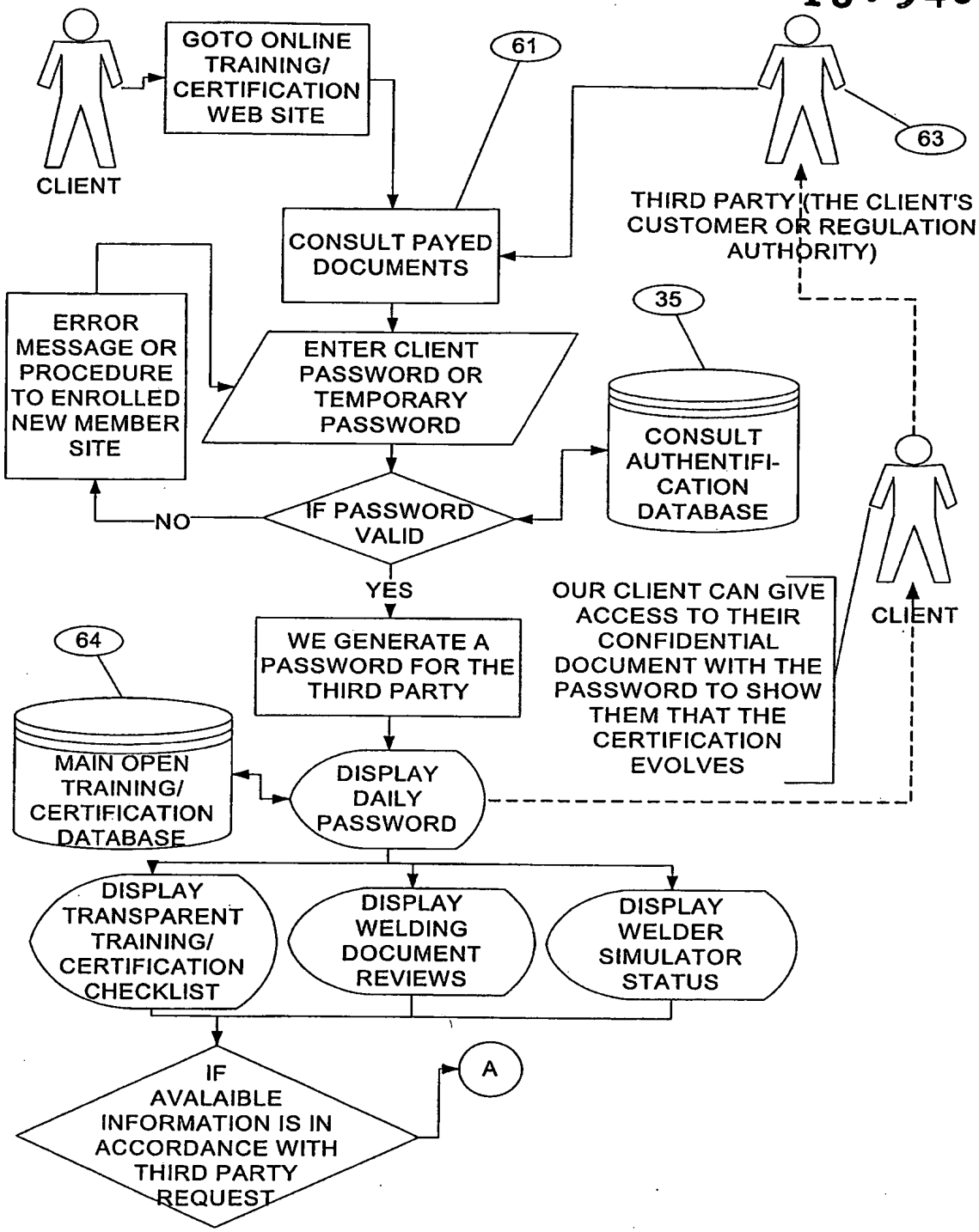
CLIENT
GOTO ONLINE TRAINING/ CERTIFICATION WEB SITE
61
63
THIRD PARTY (THE CLIENT'S CUSTOMER OR REGULATION AUTHORITY)
CONSULT PAYED DOCUMENTS
ERROR MESSAGE OR PROCEDURE TO ENROLLED NEW MEMBER SITE
ENTER CLIENT PASSWORD OR TEMPORARY PASSWORD
35
CONSULT AUTHENTIFI-CATION DATABASE
IF PASSWORD VALID
NO
YES
OUR CLIENT CAN GIVE ACCESS TO THEIR CONFIDENTIAL DOCUMENT WITH THE PASSWORD TO SHOW THEM THAT THE CERTIFICATION EVOLVES
CLIENT
64
WE GENERATE A PASSWORD FOR THE THIRD PARTY
MAIN OPEN TRAINING/ CERTIFICATION DATABASE
DISPLAY DAILY PASSWORD
DISPLAY TRANSPARENT TRAINING/ CERTIFICATION CHECKLIST
DISPLAY WELDING DOCUMENT REVIEWS
DISPLAY WELDER SIMULATOR STATUS
IF AVALAIBLE INFORMATION IS IN ACCORDANCE WITH THIRD PARTY REQUEST
A

FIG. 6

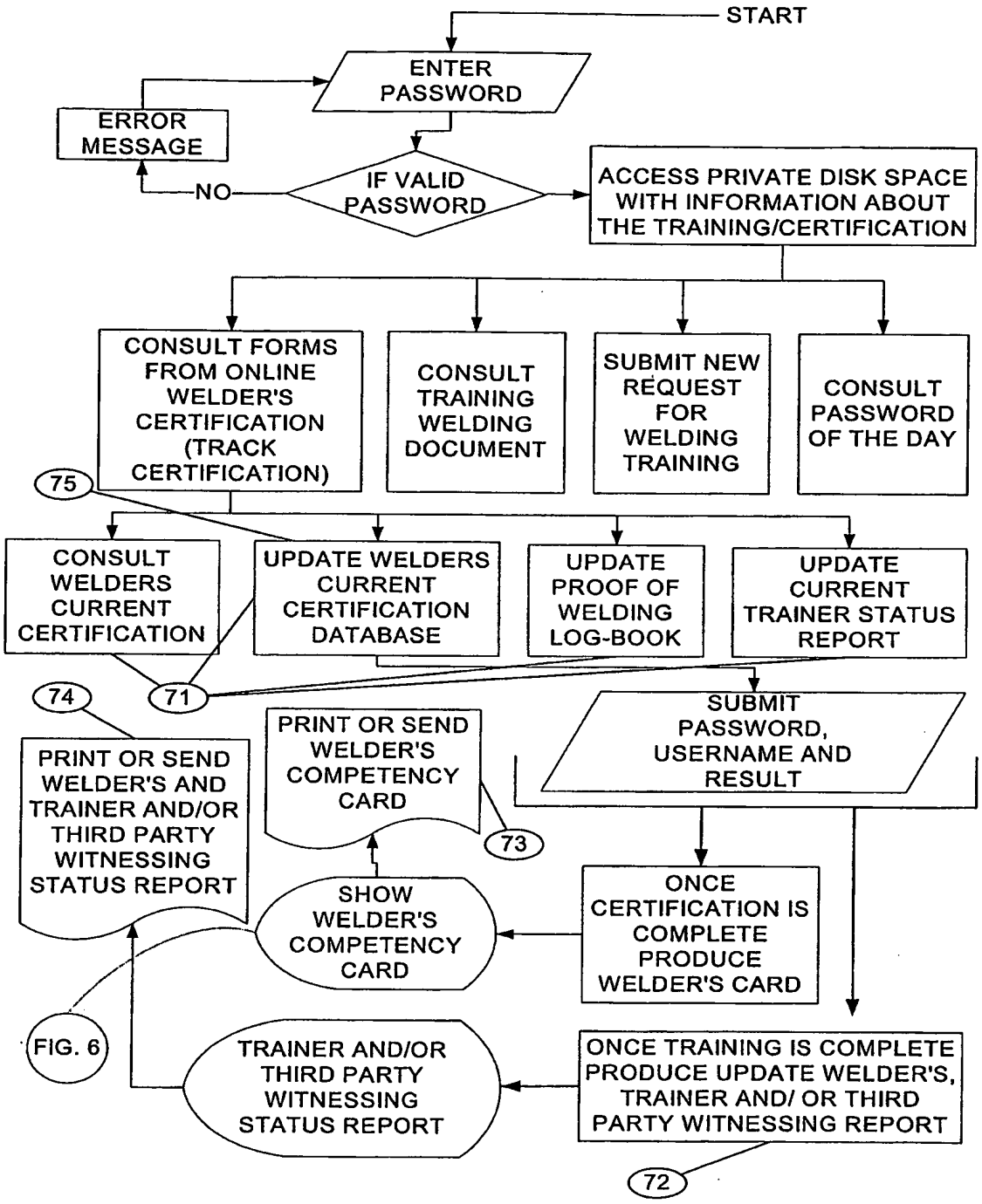

FIG. 7

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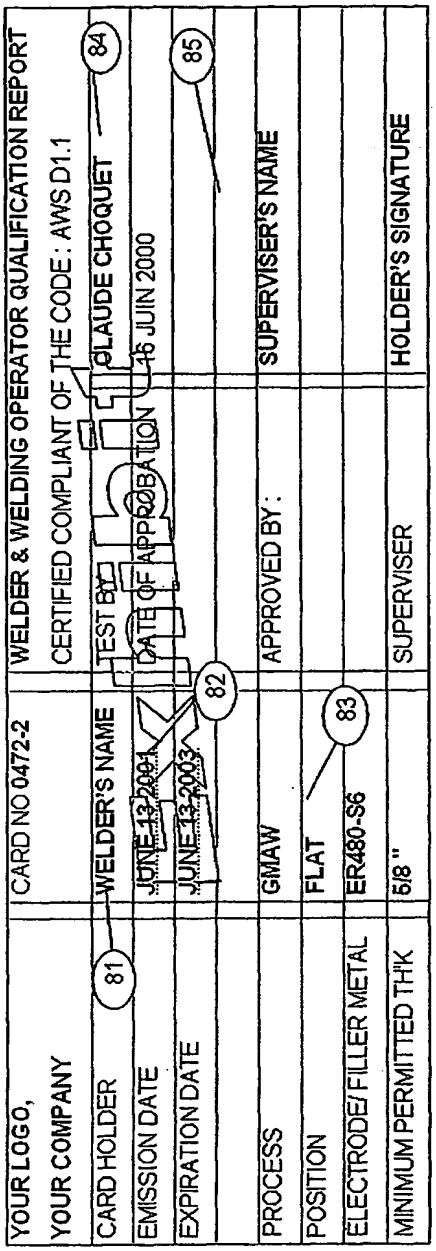


FIG. 8

EVOLUTION OF THE ONLINE CERTIFICATION				91
WELDER NAME				
BASE METAL :		FILLER METAL:	92	93
DATE :		WELDER TEST REF.:		

ITEM NO	OPERATION	RESP.	DIGITAL PRINT
1	GET THE BASE METAL ACCORDING TO THE CODE TEST	AW	UPDATE
2	GET THE FILLER METAL ACCORDING TO THE CODE TEST	AW	UPDATE
3	REVIEW THE WELDING DATA SHEET WITH THE WELDING ENGINEER	WE	UPDATE
4	PREPARATION OF THE ASSEMBLY (CHAMFERING AND TACKING)	AW	UPDATE
5	PUNCH THE ASSEMBLY	AW	UPDATE
6	GET IN CONTACT WITH THE WELDING ENGINEER	AW	UPDATE
7	VERIFICATION OF THE PREPARATION BY THE	AW	UPDATE
		AW	
16	- BENDING		...ATE
17	- EVALUATION OF THE RESULTS	AW	UPDATE
18	ACCEPTED ☐ REFUSED ☐	WE	UPDATE
19	IF TEST BY X-RAY ACCEPTED ☐ REFUSED ☐	LABO	UPDATE
20	ASSESSMENT OF THE RESULTS BY THE RESPONSIBLE PERSON	AW	UPDATE
21	TRANSCRIBE THE RESULTS ON THE B AND D FORMS	AW	UPDATE
22	TRANSMISSION OF THE RESULTS TO THE DIFFERENT INTERVENING PARTIES	AW	UPDATE

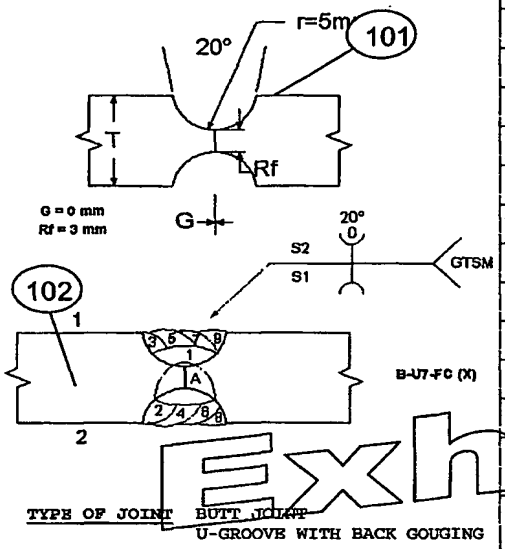
CERTIFICATION STATUS DATED OF: 04-02-26 09:58:22
LEGEND : W: WELDER; WE: WELDING ENGINEER; AW: AUTHORIZED WORKER; LABO: LABORATORY

94 95 96 97

FIG. 9

WELDING DATA SHEET	NO: F7-1 B1 12 25-5	SECTION ...3.0..... PART .E480XT-9 CH. PAGE .....-..... DATE ...june 20 2001 REVISION ...0.....

COMPLETE PENETRATION



TYPE OF JOINT BUTT JOINT
U-GROOVE WITH BACK GOUGING

MATERIAL STEEL
BASE METAL TABLE 11.1 GR. 1,2,3, CODE CSA W59
FILLER METAL E4802T-9 CH
FILLER METAL-GAS COMBINATION SEE NOTE 6
GAS: 15-25 L/MIN(35-50 CFH) 103
GAS: 75% Argon + 25% CO2
WELDING PROCEDURE (SECTION 2.0)
PROCESS FCAW SEMI-AUTOMATIC
CURRENT CC(ELEC +) STICK-OUT 15-25
POSITION FLAT
PREHEAT NONE, PAR. 2.3.10 & TAB 5.3 W59
BACK GOUGING FOR JCP APPLICABLE(4)

104

T MM (IN.)	FIG NO	LAYER NO (2)	PASS NO (2)	ELECTRODE DIAM. MM (IN.)	AMPERES	VOLTS	WELDING SPEED MM (IN.)/MIN	WIRE SPEED (IN./MIN)	RATE DEPOSITION (LB/HRS)
15(5/8)	1	1	1	1.2	300-370	26-30	250-325(10-13)	445	11.46
	2	4	2	"	"	"	250-325(10-13)		
25(1)	1	1-3	1-3-5-7-9	"	300-370	26-30	200-300(09-12)	445	11.46
	2	4	2-4-6-8	"	"	"	200-300(09-12)		
FOR ALL	2	2	A	"	"	"	200-300(09-12)	"	"

NOTE (1): THE WELDING SPEED IS GIVEN AS A REFERENCE OR A GUIDE BECAUSE IT IS FUNCTION OF CURRENT, VOLTAGE AND SIZE OF WELD REQUIRED OR DEPOSITED.

(2): GO TO PARA 2.2.12 FOR ALLOWED RANGE.
THE NUMBER OF PASSES AND LAYERS CAN BE GREATER AND IS ADJUSTED WHEN REQUIRED DEPENDING OF THE NEEDS FOR INTERMEDIATES DIMENSIONS. VOIR CLAUSE 2.2.12 FOR ALLOWED RANGE.

(3): GO TO PARA 2.2.12 FOR THE ALLOWABLE RANGE IN VARIABLES (AMPS., VOLT, GAS).

(4) : GO TO PARA 2.2.12 FOR WELDING TECHNIQUE
(5) : THE WELDING SPEED IS AN AVERAGE VALUE FOR ALL PASSES OF EACH SIDE.
(6) : THE FILLER METAL - GAS COMBINATION MUST BE APPROVED.

FIG. 10

10/540216

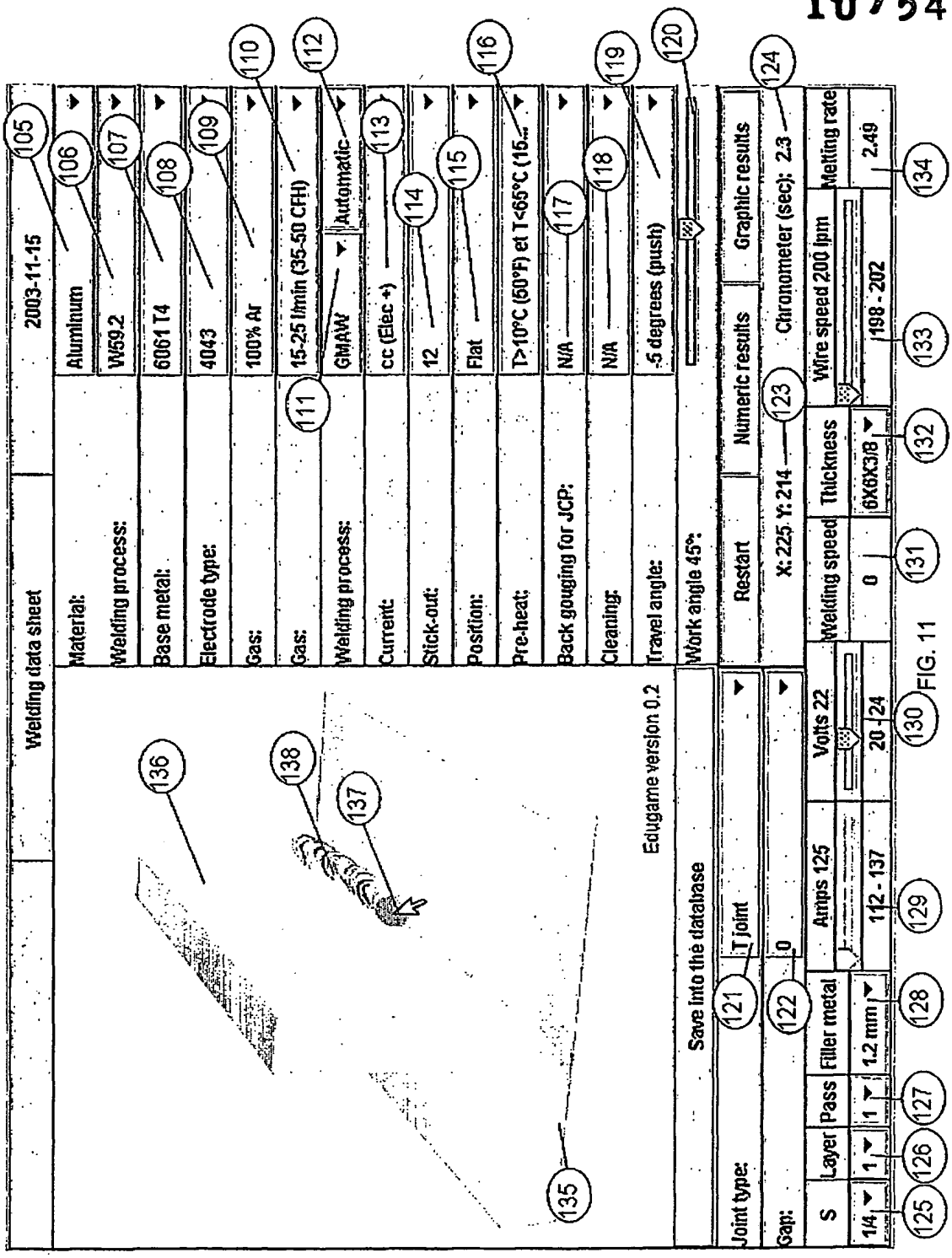


FIG. 11

FIG 12

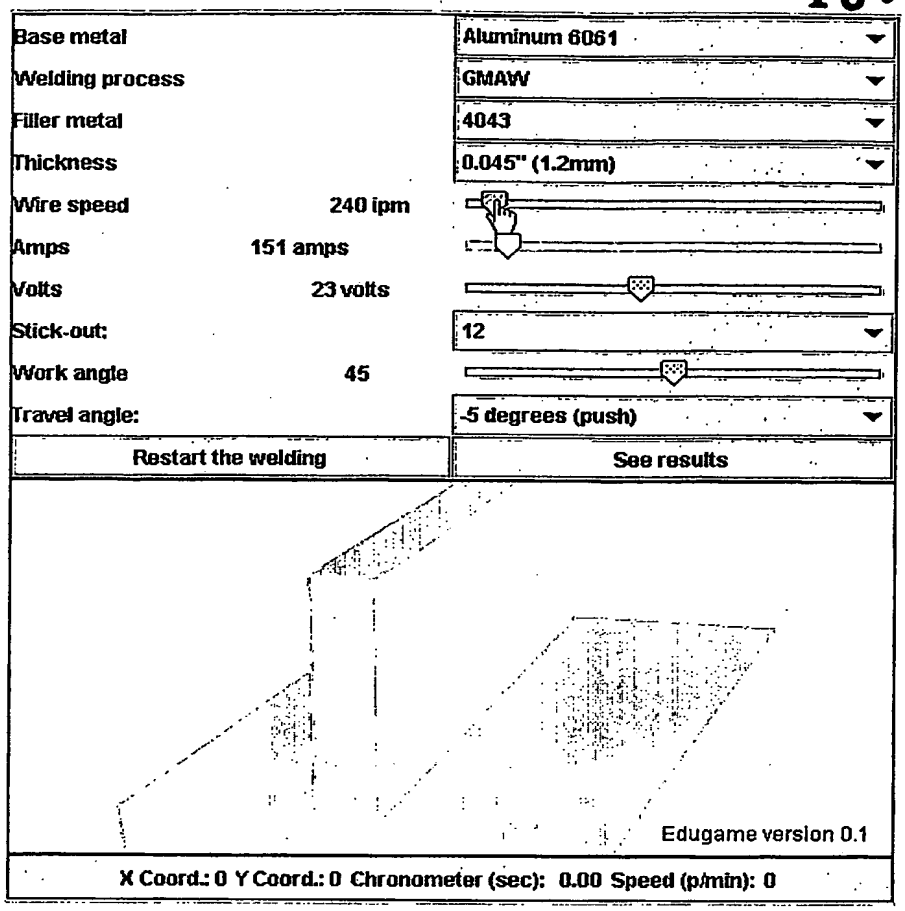

Base metal
Aluminum 6061
Welding process
GMAW
Filler metal
4043
Thickness
0.045" (1.2mm)
Wire speed
240 ipm
Amps
151 amps
Volts
23 volts
Stick-out:
12
Work angle
45
Travel angle:
-5 degrees (push)
Restart the welding
See results
Edugame version 0.1
X Coord.: 0 Y Coord.: 0 Chronometer (sec): 0.00 Speed (p/min): 0

FIG 13

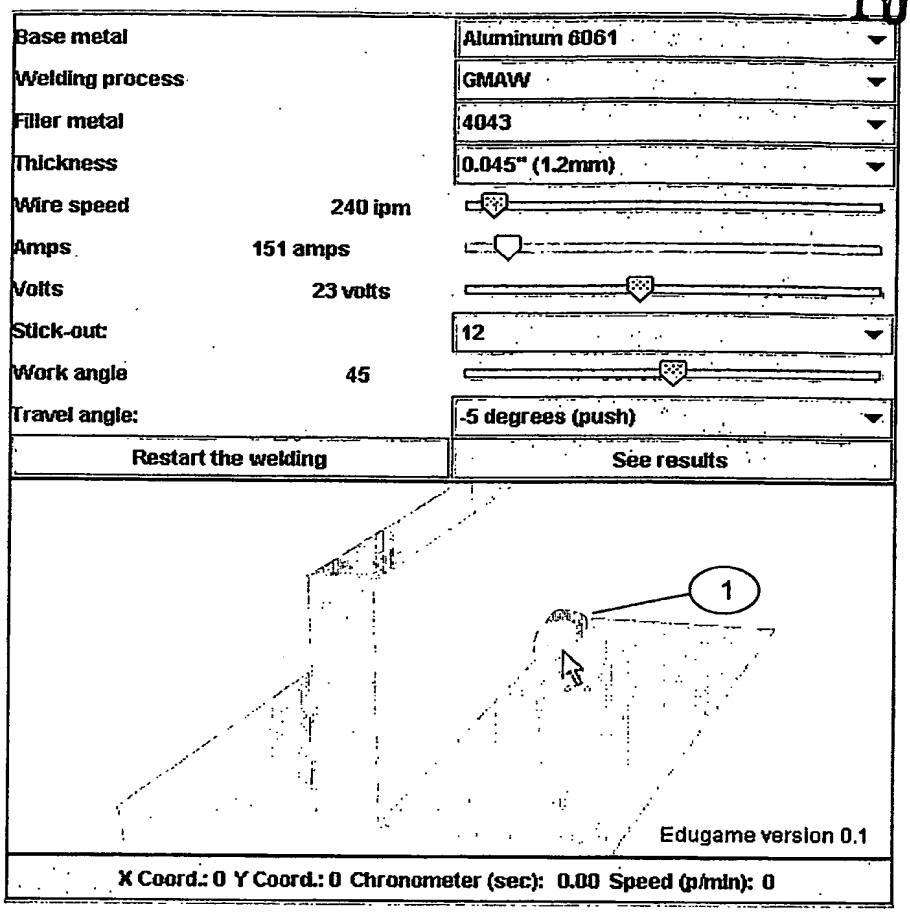

Base metal
Aluminum 6061
Welding process
GMAW
Filler metal
4043
Thickness
0.045" (1.2mm)
Wire speed
240 ipm
Amps
151 amps
Volts
23 volts
Stick-out:
12
Work angle
45
Travel angle:
-5 degrees (push)
Restart the welding
See results
1
Edugame version 0.1
X Coord.: 0 Y Coord.: 0 Chronometer (sec): 0.00 Speed (p/min): 0

FIG 14

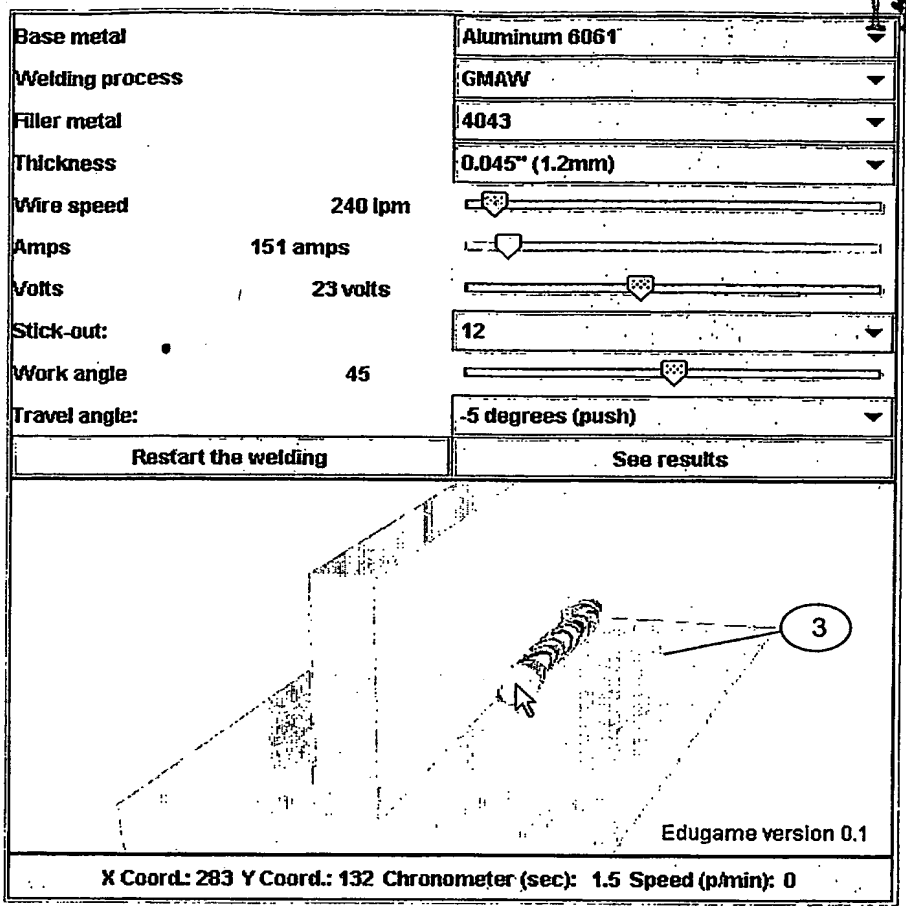

Base metal
Aluminum 6061
Welding process
GMAW
Filler metal
4043
Thickness
0.045" (1.2mm)
Wire speed
240 ipm
Amps
151 amps
Volts
23 volts
Stick-out:
12
Work angle
45
Travel angle:
-5 degrees (push)
Restart the welding
See results
3
Edugame version 0.1
X Coord.: 283 Y Coord.: 132 Chronometer (sec): 1.5 Speed (p/min): 0

FIG 15

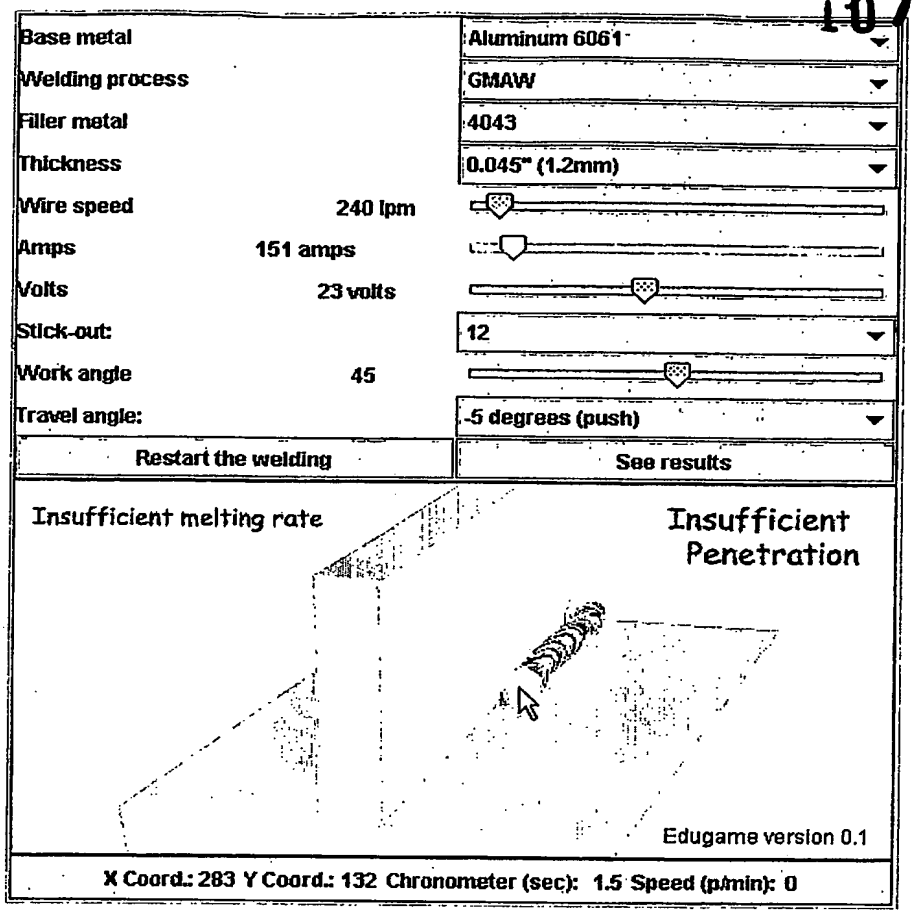

Base metal
Aluminum 6061
Welding process
GMAW
Filler metal
4043
Thickness
0.045" (1.2mm)
Wire speed
240 lpm
Amps
151 amps
Volts
23 volts
Stick-out:
12
Work angle
45
Travel angle:
-5 degrees (push)
Restart the welding
See results
Insufficient melting rate
Insufficient Penetration
Edugame version 0.1
X Coord.: 283 Y Coord.: 132 Chronometer (sec): 1.5 Speed (p/min): 0

FIG 16

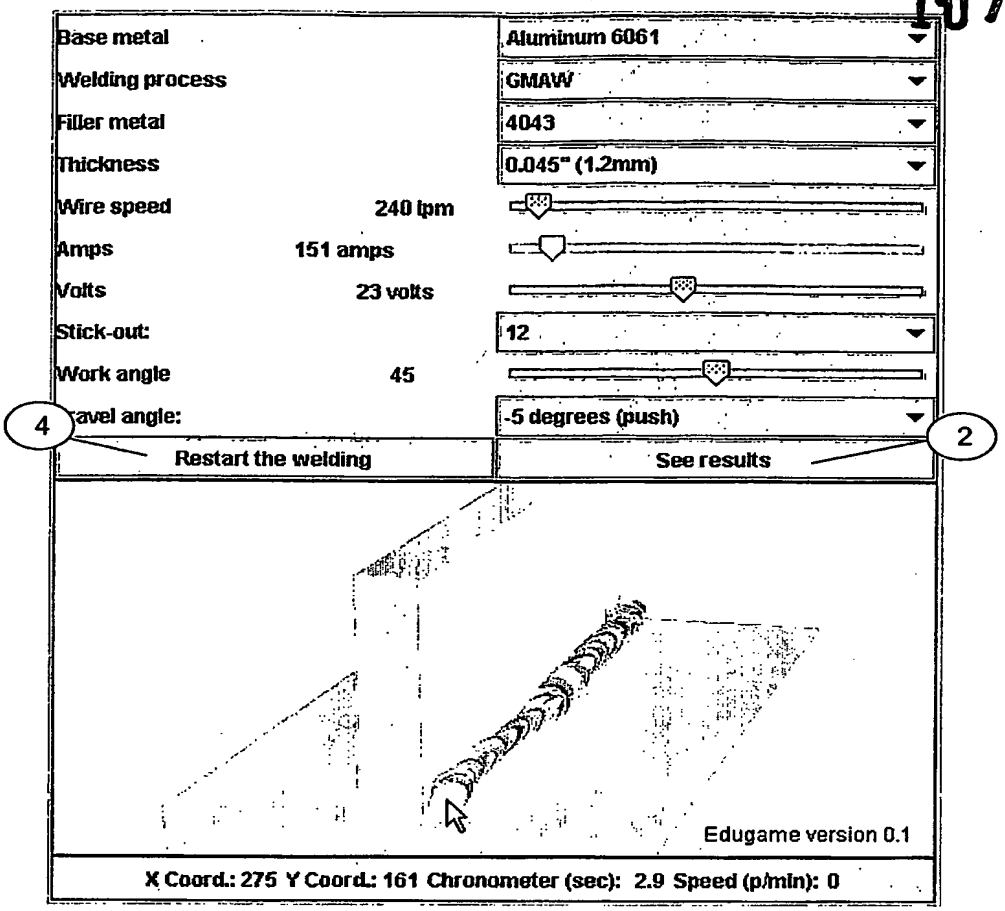

Base metal
Aluminum 6061
Welding process
GMAW
Filler metal
4043
Thickness
0.045" (1.2mm)
Wire speed
240 ipm
Amps
151 amps
Volts
23 volts
Stick-out:
12
Work angle
45
avel angle:
-5 degrees (push)
4
Restart the welding
See results
2
Edugame version 0.1
X Coord.: 275 Y Coord.: 161 Chronometer (sec): 2.9 Speed (p/min): 0

FIG 17

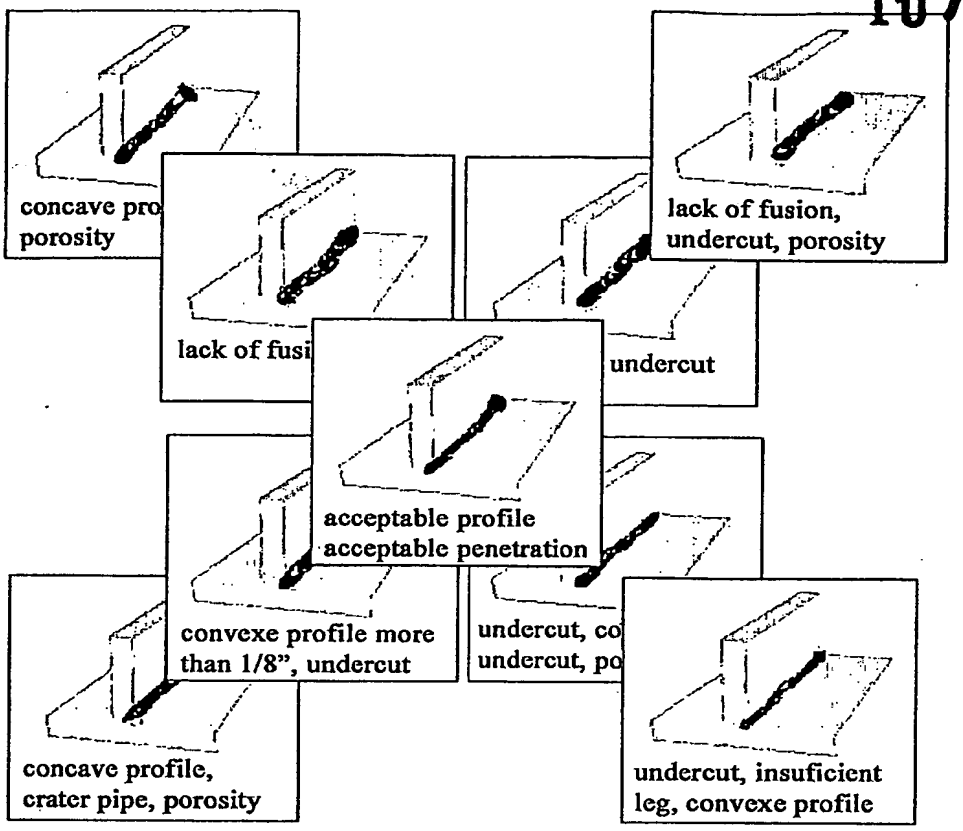

concave pro
porosity
lack of fusion,
undercut, porosity
lack of fusi
undercut
acceptable profile
acceptable penetration
convexe profile more
than 1/8", undercut
undercut, co
undercut, po
concave profile,
crater pipe, porosity
undercut, insuficient
leg, convexe profile

FIG 18

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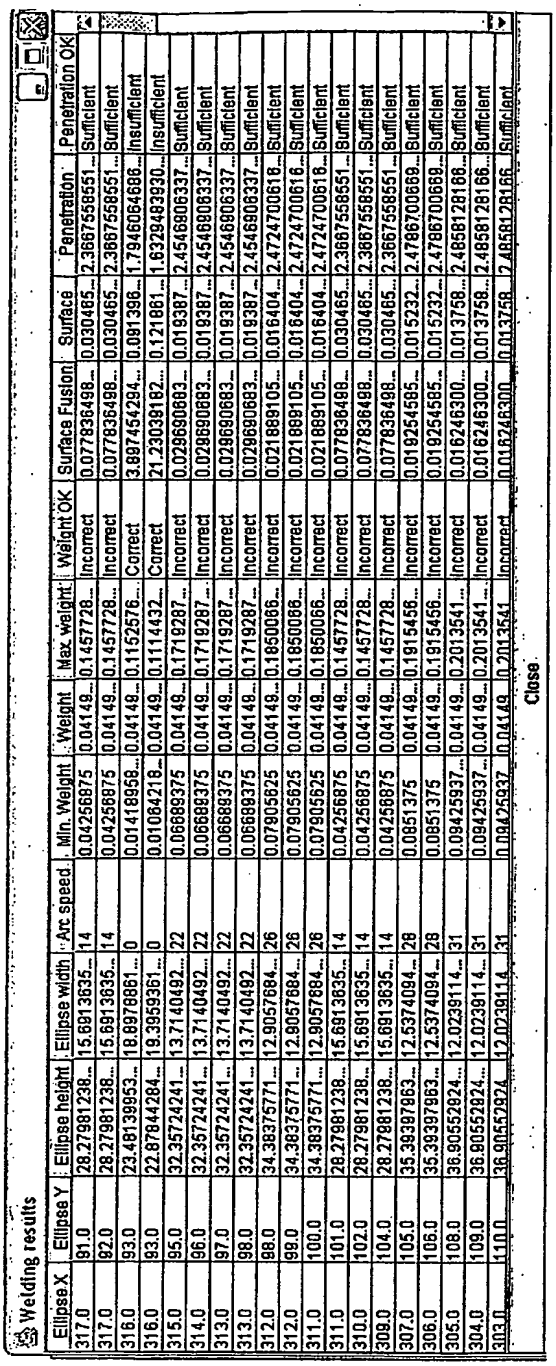

Welding results

Ellipse X	Ellipse Y	Ellipse height	Ellipse width	Arc speed	Min. Weight	Weight	Max weight	Weight OK	Surface Fusion	Surface	Penetration	Penetration OK
317.0	91.0	28.27981238...	15.6913635...	14	0.04256875	0.04149...	0.1457728...	Incorrect	0.077836498...	0.030465...	2.3667558551...	Sufficient
317.0	92.0	28.27981238...	15.6913635...	14	0.04256875	0.04149...	0.1457728...	Incorrect	0.077836498...	0.030465...	2.3667558551...	Sufficient
316.0	93.0	23.48139953...	18.8978861...	0	0.01418958...	0.04148...	0.1152576...	Correct	3.897454284...	0.091396...	1.7946064686...	Insufficient
316.0	93.0	22.87844284...	19.3959361...	0	0.01084218...	0.04149...	0.1114432...	Correct	21.23038182...	0.121861...	1.6329483930...	Insufficient
315.0	95.0	32.35724241...	13.7140492...	22	0.06689375	0.04149...	0.1719287...	Incorrect	0.029690883...	0.019387...	2.4546806337...	Sufficient
314.0	96.0	32.35724241...	13.7140492...	22	0.06689375	0.04149...	0.1719287...	Incorrect	0.029690883...	0.019387...	2.4546806337...	Sufficient
313.0	97.0	32.35724241...	13.7140492...	22	0.06689375	0.04149...	0.1719287...	Incorrect	0.029690883...	0.019387...	2.4546806337...	Sufficient
313.0	98.0	32.35724241...	13.7140492...	22	0.06689375	0.04149...	0.1719287...	Incorrect	0.029690883...	0.019387...	2.4546806337...	Sufficient
312.0	98.0	34.38375771...	12.9057684...	26	0.07905625	0.04149...	0.1850066...	Incorrect	0.021889105...	0.016404...	2.4724700618...	Sufficient
312.0	99.0	34.38375771...	12.9057684...	26	0.07905625	0.04149...	0.1850066...	Incorrect	0.021889105...	0.016404...	2.4724700616...	Sufficient
311.0	100.0	34.38375771...	12.9057684...	26	0.07905625	0.04149...	0.1850066...	Incorrect	0.021889105...	0.016404...	2.4724700618...	Sufficient
311.0	101.0	28.27981238...	15.6913635...	14	0.04256875	0.04148...	0.1457728...	Incorrect	0.077836498...	0.030465...	2.3667558551...	Sufficient
310.0	102.0	28.27981238...	15.6913635...	14	0.04256875	0.04149...	0.1457728...	Incorrect	0.077836498...	0.030465...	2.3667558551...	Sufficient
309.0	104.0	28.27981238...	15.6913635...	14	0.04256875	0.04149...	0.1457728...	Incorrect	0.077836498...	0.030465...	2.3667558551...	Sufficient
307.0	105.0	35.39397863...	12.5374094...	28	0.0851375	0.04149...	0.1915456...	Incorrect	0.019254585...	0.015232...	2.4786700669...	Sufficient
306.0	106.0	35.39397863...	12.5374094...	28	0.0851375	0.04149...	0.1915456...	Incorrect	0.019254585...	0.015232...	2.4786700689...	Sufficient
305.0	108.0	36.90552824...	12.0239114...	31	0.09425937...	0.04149...	0.2013541...	Incorrect	0.016246300...	0.013758...	2.4858128186...	Sufficient
304.0	109.0	36.90552824...	12.0239114...	31	0.09425937...	0.04149...	0.2013541...	Incorrect	0.016246300...	0.013758...	2.4858128166...	Sufficient
303.0	110.0	36.90552824...	12.0239114...	31	0.09425937...	0.04149...	0.2013541...	Incorrect	0.016246300...	0.013758...	2.4858128166...	Sufficient

Close

FIG. 19

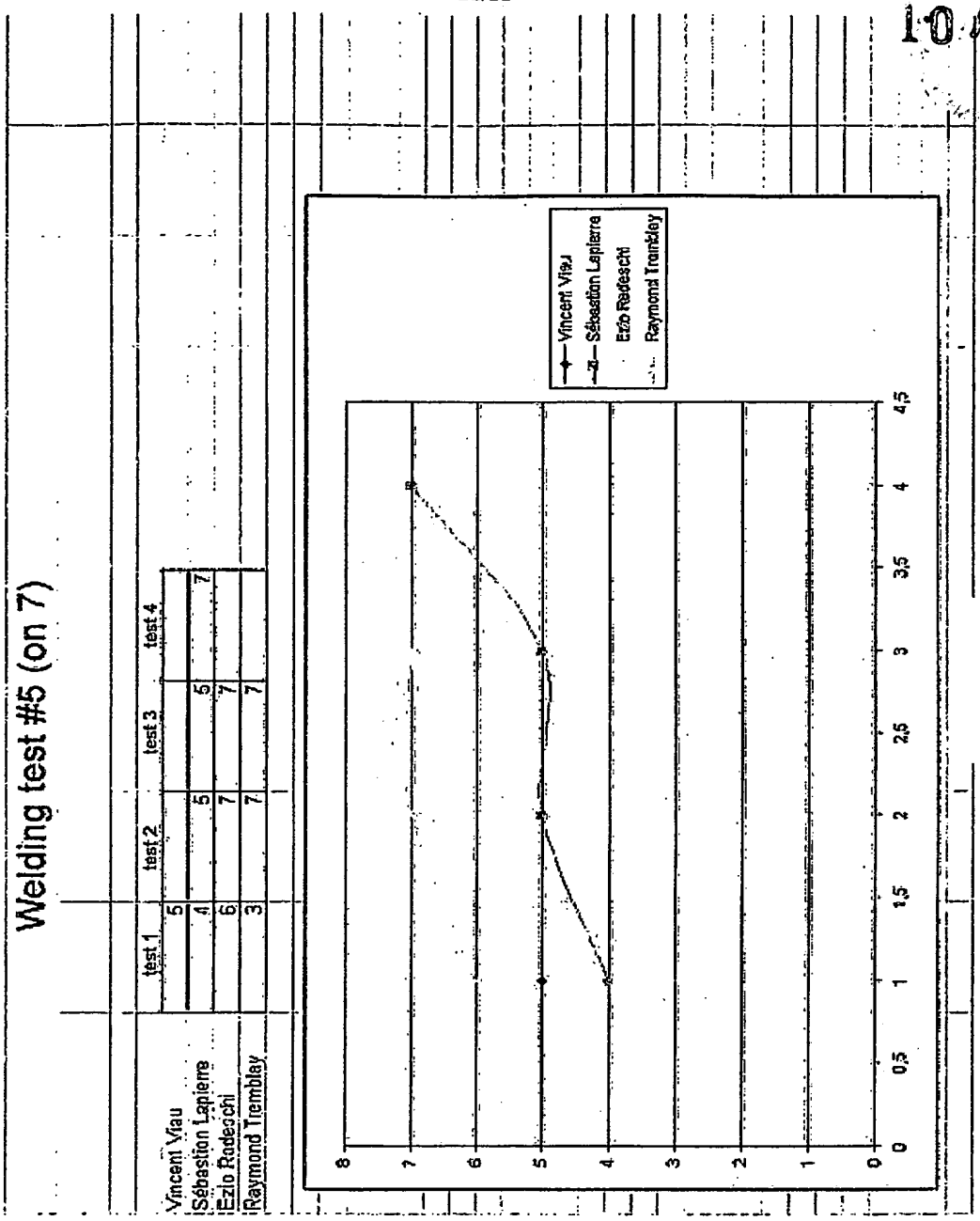

FIG. 20